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ined after it has taken place, a slight darkening of the new feathers is noticeable. "A radical change in the pigmentation of the plumage takes place with each succeeding molt." The darkening seems to parallel the coloration of the wild species; that is, after the first molt the bird is similar to the wild *Scardafella inca di-leucos*, which inhabits Honduras and Nicaragua. Later molts bring the subject in line with *Scardafella ridgwayi* of Venezuela and Brazil. Finally it became so dark that there is no wild species with which it may be compared. In the birds experimented on a steady increase of melanin, both in the feathers and in the choroid coat of the eye, takes place until finally no white feather areas at all are left. Many wild genera of tropical doves are characterized by an iridescence of the wing coverts and inner secondaries. A remarkable feature of the color change of Mr. Beebe's subjects is the appearance of iridescence upon these feathers as a certain stage of melanin concentration is reached.

In discussing the results of his experiments, the author considers the following subjects, Significance in Respect to Direction of Evolution, Correlation with Natural Selection, Correlation with Taxonomy, and Correlation with Organic Selection.

The doves or *Columbiformes* are for the most part tropical in distribution, and it is probable that those which range farther to the north are tropical in origin. Since in these experiments the color characters assumed are progressively parallel to species farther toward the tropics, we apparently have an instance of "reversal of the direction of evolution." As the "recapitulation follows the same lines as in related genera of doves", and the details of change are identical in several individuals, Mr. Beebe decides that his work supports the orthogenetic hypothesis. He says that *acquired* and *inherited* characters should be clearly distinguished. The experiments here recorded show that the *Scardafella* specific differences are merely ontogenetic, or acquired characters.

"Mutation and natural selection have no place in these experiments." Still Mr. Beebe is led to the conclusion that natural selection is important in nature. For example, if the white color of Arctic animals is purely the result of environmental modification of pigment production "why does not the snowy owl change in summer like the ptarmigan", and why do some mammals remain dark thruout the year, while others are white at certain seasons? Natural selection probably comes continuously into play, modifying the direct climatal effect in accordance with the needs of each species. The rapid response to environment recorded in these experiments is likely to shake the ideas of "gradual evolution" and

"long-continued action of environing conditions upon the whole organism."

The writer thinks that it would be unreasonable to discard species whose distinctive characters are found to be merely acquired, for often there is a geographical hiatus between the species, and other differences, for instance in habits, would be swamped under one name.

"Any correlation of the results outlined in the present paper with the various theories of evolution must be tentative in the present state of our knowledge." This point we think should be emphasized, for when an individual of a wild species is experimented upon in confinement the fine adjustments of nature are broken down, and many subtle influences we do not now understand may be taken from it or brought to bear upon it, perhaps wholly obscuring the truly significant features. Mr. Beebe asserts that his experiments seemingly support the theory of organic selection; he gives as a possible adaptive character the presence of increased pigment in epidermal structures in a hot moist climate—adaptive in that this pigment absorbs the irritating ultra-violet rays of light. Compared with animals of the arid deserts, however, animals in the hot, moist, and therefore cloudy climates receive comparatively little light, and we should expect the former would exhibit the most abundant epidermal pigment supply! The following proposition seems justifiable, however, "if a new character, ontogenetically acquired, is in any way adaptive, it might easily be the means of preserving the species until phylogenetic variation had impressed it upon the race."

The paper constitutes one more step toward the placing of experimental biology upon a basis of importance in research work on the great problems of the science. The impression left on the reviewer, however, is that of the exploitation of the unknown rather than addition to the known.—*Walter P. Taylor.*

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

JANUARY.—The regular annual meeting for the election of officers of the Northern Division of the Cooper Club was held at the Chamber of Commerce, corner of Twelfth and Franklin Streets, Oakland, Saturday evening, January 11, 1908.

Preceding the business session Mr. Edw. W. Gifford, assistant Curator of Ornithology in the Academy of Sciences, San Francisco, spoke on "The Restoration of the Academy Collection." Mr. Gifford referred to the good fortune of the Academy in receiving the collections of the Beck Expedition after the fire, thus

forming a nucleus for the new collection. During the progress of the fire some of the skins had been removed to Mr. Loomis' residence, but unfortunately this dwelling, too, was included in the path of the flames on the following day. Only two skins of all the thousands were saved and these were two Guadalupe Petrels which Mr. Loomis thrust into his pocket as he emerged from his burning home with his household effects.

Mr. Wm. H. Hall, who had promised a talk on the birds of the Hawaiian Islands was too ill to be present so the discussion now became informal and turned on the subject of "Albinos." Some remarkable instances were elicited.

Mr. W. Otto Emerson reported an Anna Hummingbird with the plumage entirely of a dirty white color; also a Red-winged Blackbird entirely white except the tail which was of the usual glossy black, making a startling contrast. Another instance was that of an Oregon Towhee flecked with white suggesting to the observer an advanced stage of a progressive disease.

Dr. D'Evelyn cited an instance of a partial albino English Sparrow that came under his observation in Union Square, San Francisco. He also remarked that in practical aviculture albino parents never produce albino offspring.

Mr. J. S. Hunter spoke with admiration of a white crow and Mr. Emerson, not to be outdone, offered a record of a nest of five California Jays, all white, also two broods of English Sparrow of five and six respectively all albinos in the nest, refuting the theory suggesting an analogy between the albino and the human being with whitened hair attendant upon some nervous shock.

Dr. D'Evelyn called attention to a mounted specimen of the Kiwi in a store window on Fourteenth street, between Washington and Broadway, Oakland. This species is the *Apteryx oweni*, found on the South Island of New Zealand, but only in very remote districts.

The business session being opened, a roll-call showed the following members present: H. W. Carriger, D. A. Cohen, Dr. F. W. D'Evelyn, W. O. Emerson, Edw. W. Gifford, J. S. Hunter, Milton S. Ray and R. S. Wheeler.

The following elections by the Southern Division were confirmed: R. Magoon Barnes of Lacon, Ill., Dr. T. W. Richards, U. S. S. Kansas, care Postmaster, New York, N. Y., Robert B. Rockwell, Denver, Colorado, B. R. Bales, M. D., Circleville, Ohio, Jesse C. A. Meeker, Danbury, Conn.

Mr. Milton S. Ray proposed the name of Oluf J. Heinemann, 1532 Fulton Street, San Francisco, for membership. It was voted that an expression of the thanks of the Northern Division be tendered the former business manager,

Mr. Clifton, and the Chair appointed Messrs. Cohen, Emerson and Wheeler to draft the same.

After a vote of thanks to the retiring president and Secretary the club proceeded to the election of officers with the following results: President, Dr. Fred. W. D'Evelyn of Alameda; Senior Vice President, W. O. Emerson of Haywards; Junior Vice President, Edw. W. Gifford of Alameda; Secretary, J. S. Hunter of San Mateo.

In accordance with certain provisions of the constitution the President appointed as the editorial staff of THE CONDOR for the ensuing year the same gentlemen who served during the past year.

The Oakland Chamber of Commerce was selected as the official headquarters of the Northern Division. Adjourned.

ROSSELL S. WHEELER, *Secretary*.

SOUTHERN DIVISION

DECEMBER.—The December meeting was called to order by President Morcom in the Faculty room, Throop Polytechnic Institute, Pasadena, Cal., Friday evening, December 27, 1907, with members Geo. Willett, O. W. Howard, C. B. Linton, Chas. W. Metz, Howard Wright, Chas. Richardson, Jr., and J. Eugene Law present.

The minutes of the last meeting, November 27, 1907, were read and approved.

On motion by Mr. Howard, seconded by Mr. Wright and duly carried, the Secretary was instructed to cast the unanimous vote of those present electing to active membership Louis Agassiz Test, C. O. Esterly and Robert B. Rockwell, the latter subject to the approval of the Club-at-large owing to his non-residence in the state.

Applications for membership were presented as follows: W. M. Peterson, Neah Bay, Washington, by M. F. Gilman; Miss Myrtle E. Johnson, National City, Cal., by Prof. Wm. E. Ritter; Lester Black, Long Beach, Cal., by C. B. Linton; and Pingree I. Osburn, Pasadena, Cal., by Chas. H. Richardson, Jr.

On motion by Mr. Howard, seconded by Mr. Willett and duly carried, the resignation of M. L. Wicks, Jr., was accepted.

On motion by Mr. Willett, seconded by Mr. Howard and duly carried, the Secretary was instructed to cast, separately for each officer, the unanimous ballot of those present, electing as officers for 1908, those nominated at the december meeting, viz.: G. Frean Morcom, President; H. J. Lelande, Vice-President; W. Lee Chambers, Treasurer; and J. Eugene Law, Secretary.

This records the formal meeting and the business transacted, but it would be hard to record the hours of pleasurable and instructive orni-

thological chat that occupied the evening before and after business. Adjourned.

J. EUGENE LAW, *Secretary*.

JANUARY.—The January meeting of the Southern Division met with Dr. F. M. Palmer in his offices at 371 Huntington Building, Los Angeles, Cal., Thursday evening, January 30, 1908, with members L. A. Test, C. O. Esterly, Jos. Grinnell, O. W. Howard, H. T. Clifton, Willard Chamberlain, Howard Wright, Arthur Howard, Wilson C. Hanna, Chas. H. Richardson, Jr., C. E. Cosper, C. B. Linton, Lester Black, W. Lee Chambers, Virgil Owen and J. E. Law present. In the absence of the President and Vice-President, Mr. Clifton was made chairman for the evening.

On motion by Mr. Cosper, seconded by Mr. Owen and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing Miss Myrtle E. Johnson, National City, Cal., Mr. Lester Black, Long Beach, Cal., and Mr. Pingree I. Osburn, Pasadena, Cal., to active membership, and Mr. W. M. Peterson, Neah Bay, to active membership subject to the approval of the Club-at-large.

The following applications were presented for active membership: Arthur deC. Lowerly, Anglo-Chinese College, Tientsin, China, by Malcolm P. Anderson; Alfred Brazier Howell, Catonsville, Maryland, by H. W. Marsden; and J. M. Davis, 1438 Seventh Street, Eureka, Cal., by H. F. Duprey.

On motion duly carried, the resignations of Mr. W. Scott Way and Mr. E. Crawford May were accepted, their dues having been paid to date.

Two interesting letters from Malcolm P. Anderson, now collecting in China, were read, telling of his successes and hardships in that field.

Dr. F. M. Palmer in a short talk outlined the plans for a distinctly southwestern museum in southern California. This plan has progressed so far that a site comprising something over 35 acres has been purchased and largely paid for. The Archeological Society already has as a nucleus for this museum its very fine collection of archeological specimens, many of which are almost unique, and are of great scientific value. Dr. Palmer suggested the cooperation of the Cooper Ornithological Club in the directing and establishing of the ornithological branch of the museum, and hoped that in some way not yet figured out, this might be accomplished. On motion by Mr. Grinnell, seconded by Mr. Owen and duly carried, the chairman was instructed to appoint a committee of three, to consider these suggestions and report at a future meeting. Messrs. Grinnell, O. W. Howard and Law were appointed as this committee.

Mr. Grinnell then gave us a brief outline of

his recent trip of inspection thru the eastern museums. In a trip covering five weeks in December and January, he visited the Chicago, Washington, D. C., Philadelphia, New York and Boston Museums, and met a large number of the ornithologists of these centers. An hour went quickly in this rapid outline, and we were given "inside touches" on all these museums. Of special interest were the accounts of the Field Museum, The American Museum of Natural History, and the Thayer Museum. Adjourned.

J. EUGENE LAW, *Secretary*.

FEBRUARY.—The February meeting was called to order by President Morcom at Faculty Room, Throop Polytechnic Institute, Pasadena, Cal., Thursday evening, February 20, 1908, with members John Lewis Childs, O. W. Howard, Geo. Willett, Jos. Grinnell, Loye Holmes Miller, L. A. Test, C. O. Esterly, H. T. Clifton, C. B. Linton, C. E. Cosper, Walter Taylor, Chas. Richardson, Jr., Howard Wright, Pingree I. Osburn, Chas. W. Metz, Willard Chamberlain and J. E. Law present, and as visitor Mr. W. S. Wright of Pasadena.

The minutes of the December, 1907, and January, 1908, meetings were read and approved.

On motion by Mr. Willett, seconded by Mr. Cosper and duly carried, the Secretary was instructed to cast the unanimous ballot of those present, electing to active membership subject to the approval of the Club-at-large, Alfred Brazier Howell, Catonsville, Maryland, and J. M. Davis, Eureka, Cal.

Mr. Childs gave a short talk in which he expressed his interest in the activity of the Cooper Club and his pleasure at being able to meet with it from time to time.

Mr. Grinnell read a paper on certain problems of bird population, calling the Club's attention to the comparative stability in numbers, i. e., that apparently the death rate equaled the birth rate. This, he showed by illustrations and observations, was primarily due to food supply conditions, and that apparently any given species was limited in numbers to those that could find food supply in the season of least food production. In other words, any given locality held as many individuals as could exist in that region in the period of least abundance of the particular food the individuals lived on, and that in this season of least abundance, the bird population of any given species is reduced to the average number thru the death of those members not able to compete in the strife for existence.

Mr. Grinnell suggested that the Club acquaint itself meanwhile with, and at the next meeting discuss, Prof. F. E. L. Beal's recent paper on the "Birds of California in Relation to the Fruit Industry." Adjourned.

J. EUGENE LAW, *Secretary*.